

Feb 28th, 11:15 AM - 11:30 AM

## Update of WAVCIS and the Use of Its Data for Coastal Processes

C. Li

*Coastal Studies Institute, Louisiana State University*

B. Gibson

*Coastal Studies Institute, Louisiana State University*

B. Liu

*Coastal Studies Institute, Louisiana State University*

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Li, C.; Gibson, B.; and Liu, B., "Update of WAVCIS and the Use of Its Data for Coastal Processes" (2013).  
*Ocean Waves Workshop. 2.*

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# **Update of WAVCIS and the Use of Its Data for Coastal Processes**

**C. Li, B. Liu, B. Gibson  
WAVCIS, LSU**

# Data Sharing

- **Completely opened for free access to the public**
- **12 months data free download of all WAVCIS data**
- **Any request of data older than 12 months will be dealt with on a case-by-case bases and a processing fee is applicable**



# Funding and Continued Operation

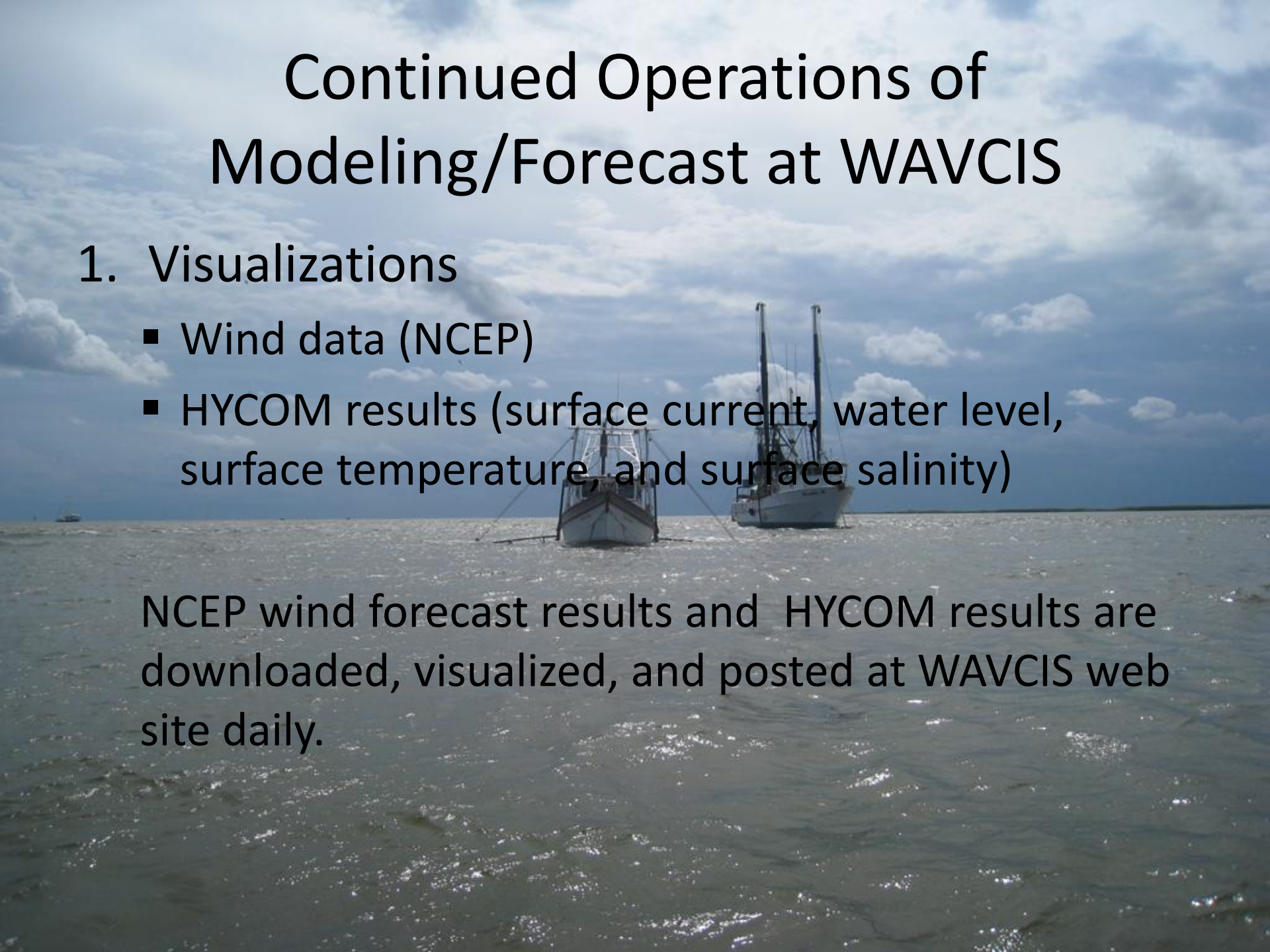
- WAVCIS is not free to operate
- GCOOS-RA
- LUMCON
- A BP Project
- CPRA
- Salary Savings of Other Projects

# Continued Operations of Modeling/Forecast at WAVCIS

## 1. Visualizations

- Wind data (NCEP)
- HYCOM results (surface current, water level, surface temperature, and surface salinity)

NCEP wind forecast results and HYCOM results are downloaded, visualized, and posted at WAVCIS web site daily.



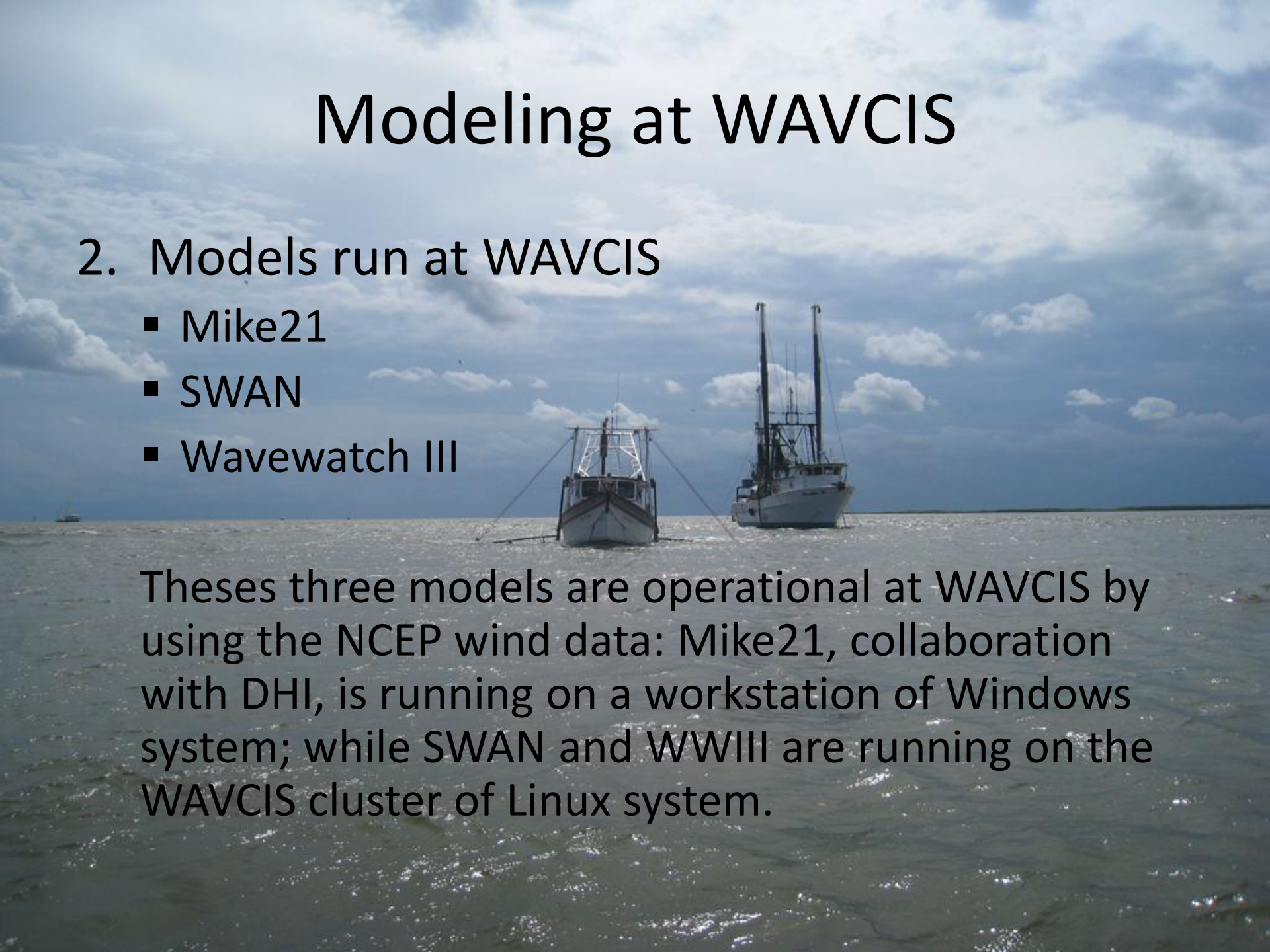


# Modeling at WAVCIS

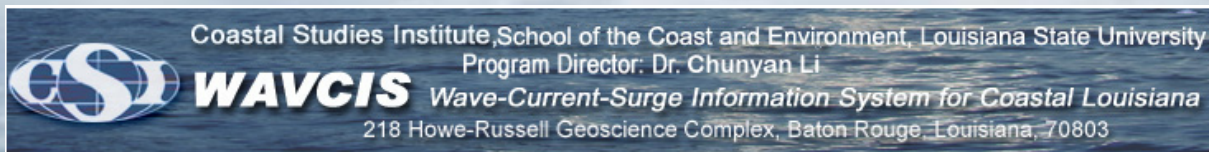
## 2. Models run at WAVCIS

- Mike21
- SWAN
- Wavewatch III

Theses three models are operational at WAVCIS by using the NCEP wind data: Mike21, collaboration with DHI, is running on a workstation of Windows system; while SWAN and WWIII are running on the WAVCIS cluster of Linux system.

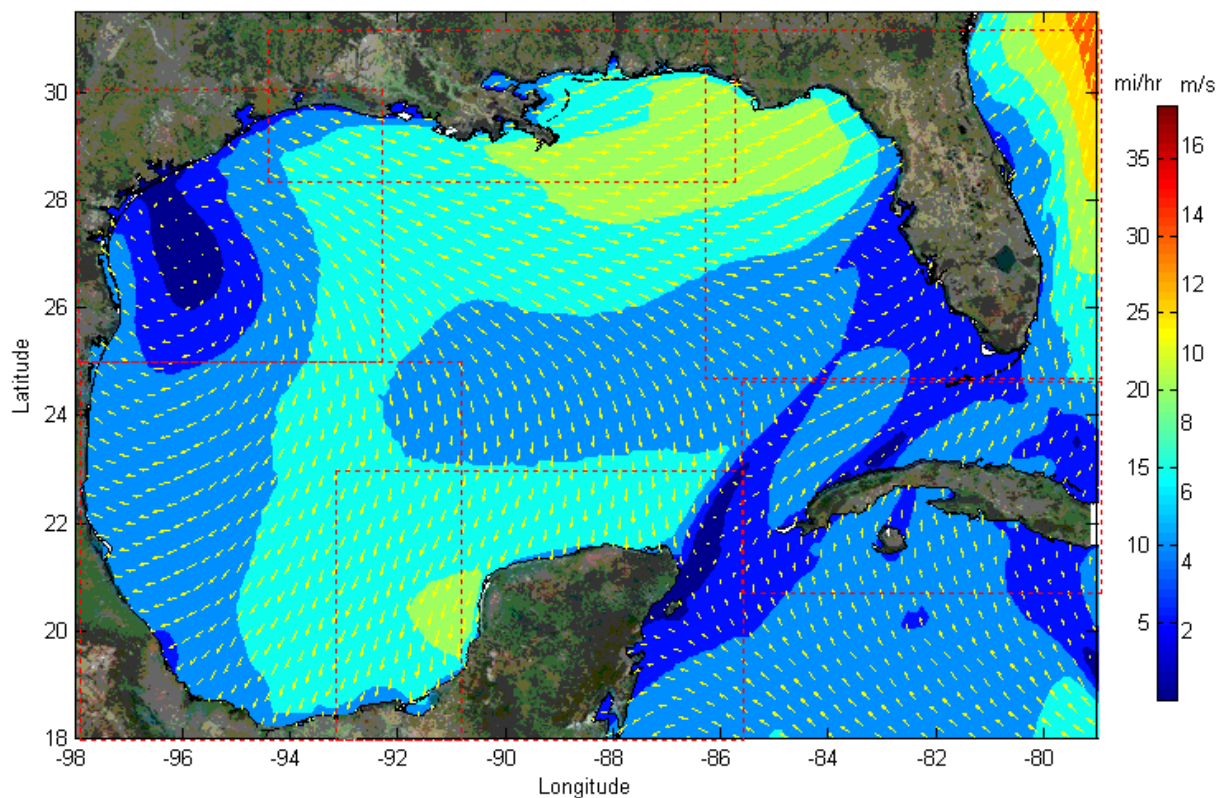


# 84 Hour Wind Forecast



## 84 Hour Wind Forecast

Wind speed and direction for 02/27/13 00:00Z (02/26/13 18:00 CST), NCEP (NOAA) Forecast  
Forecasted at 02/27/13 00:00Z





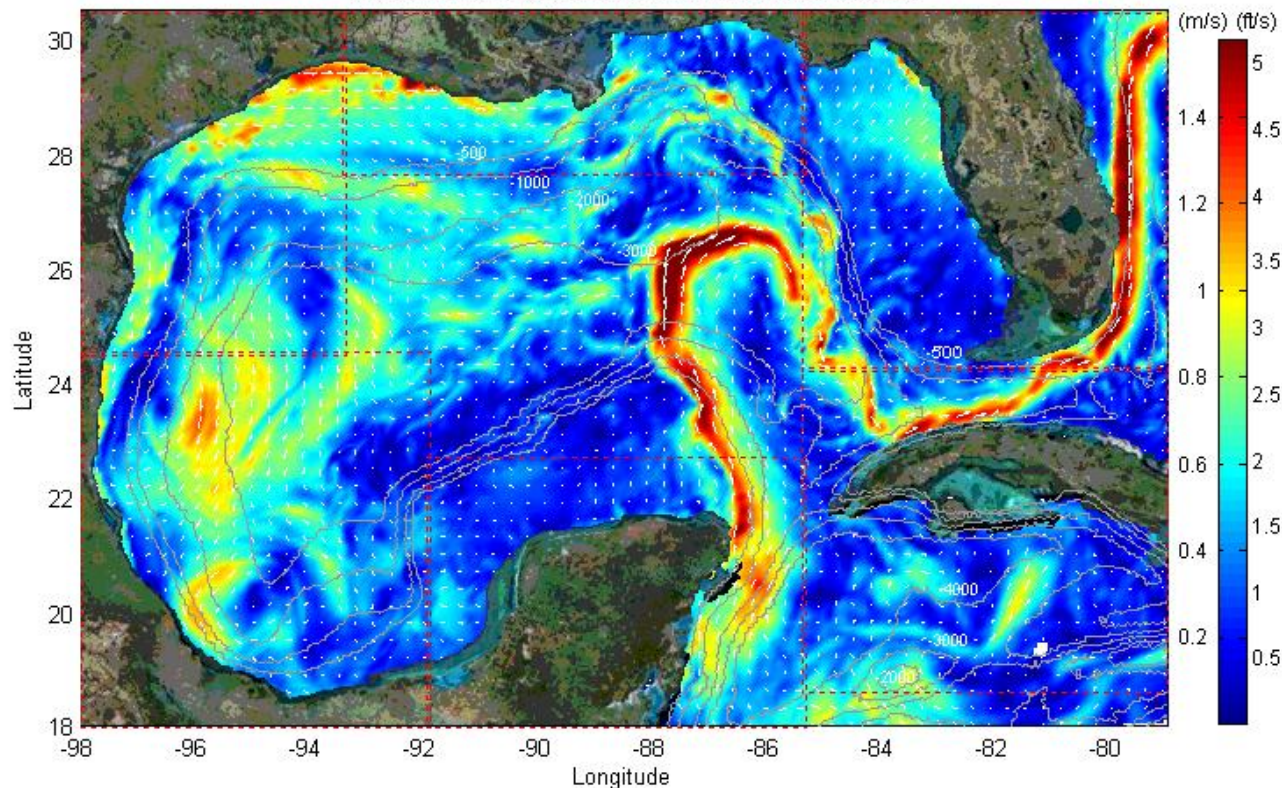
# HYCOM Surface Current Forecast



Coastal Studies Institute, School of the Coast and Environment, Louisiana State University  
Program Director: Dr. Chunyan Li  
**WAVCIS** Wave-Current-Surge Information System for Coastal Louisiana  
218 Howe-Russell Geoscience Complex, Baton Rouge, Louisiana, 70803

## 120 Hour Surface Current Forecast

HYCOM GOM Surface Velocity-2013/02/26 03:00(GMT)



Coastal Studies Institute





# HYCOM Water Level forecast



Coastal Studies Institute, School of the Coast and Environment, Louisiana State University  
Program Director: Dr. Chunyan Li

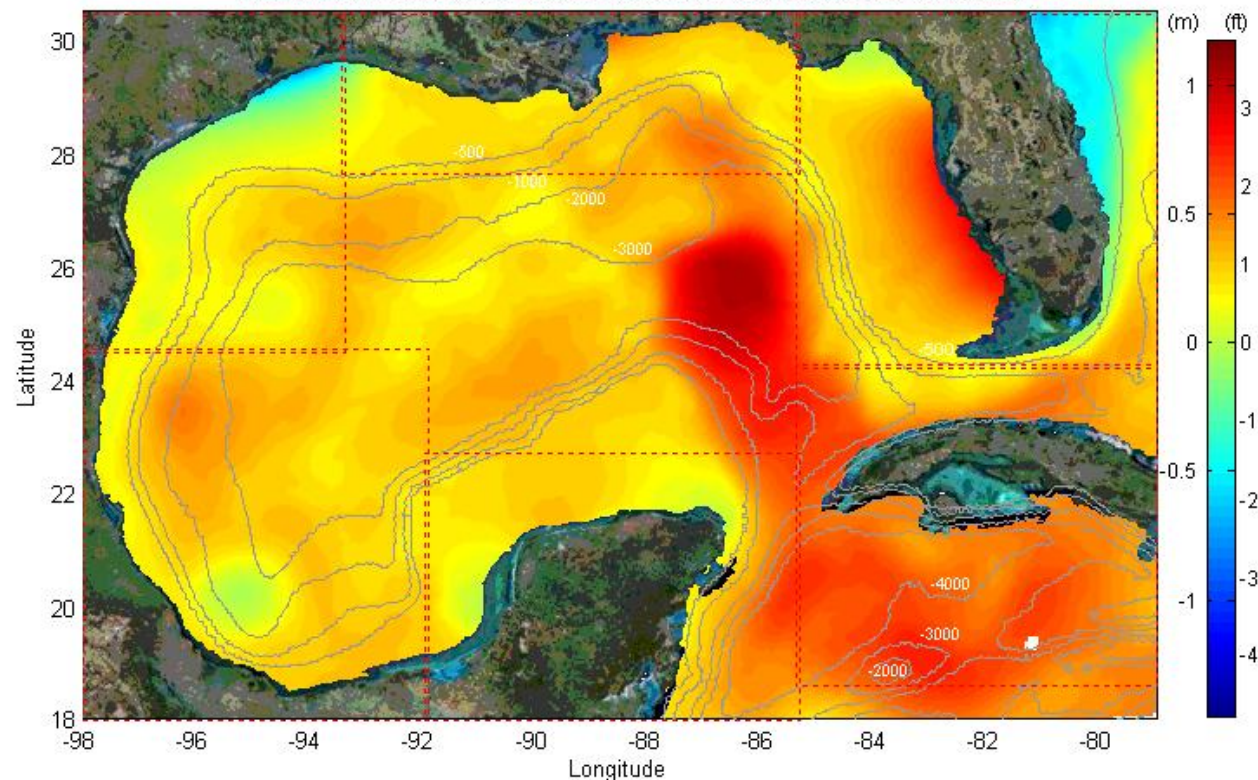
**WAVCIS**

Wave-Current-Surge Information System for Coastal Louisiana

218 Howe-Russell Geoscience Complex, Baton Rouge, Louisiana, 70803

## 120 Hour Water Level Forecast

HYCOM GOM Sea Surface Elevation relative to Geoid-2013/02/26 03:00(GMT)



Coastal Studies Institute





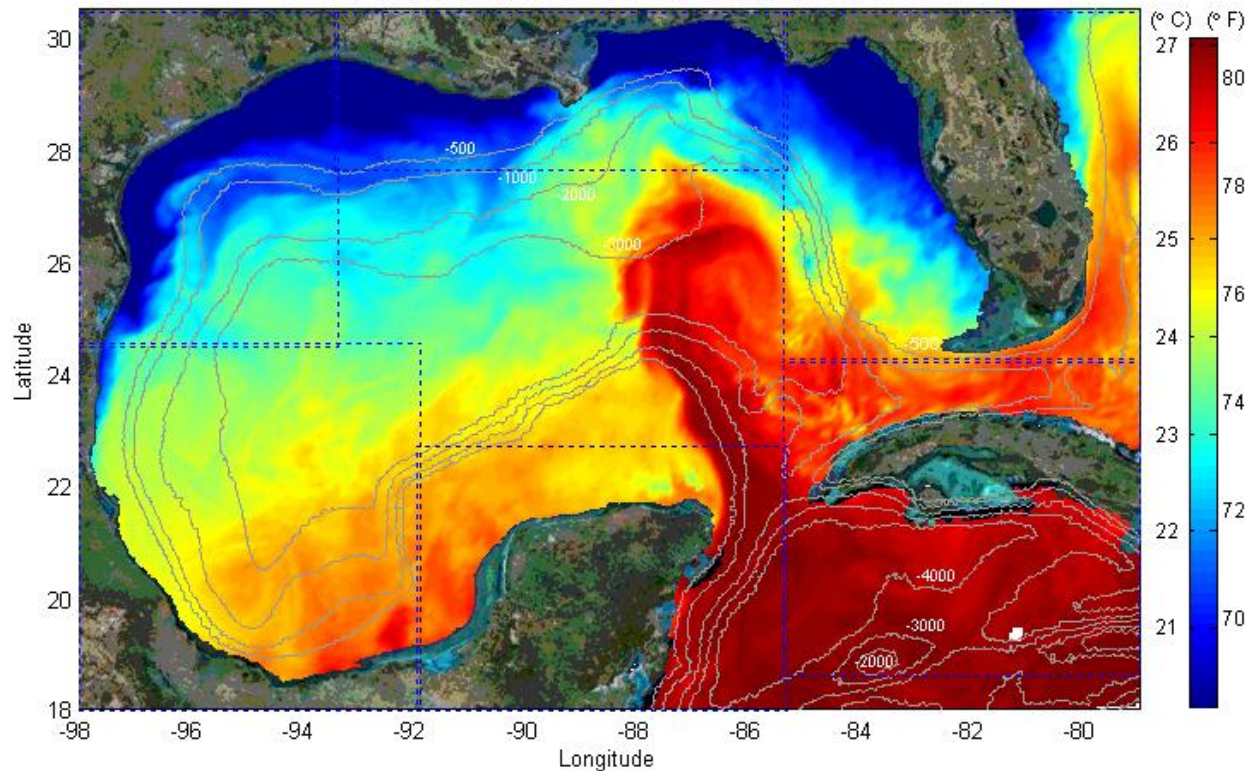
# HYCOM Surface Temperature Forecast



Coastal Studies Institute, School of the Coast and Environment, Louisiana State University  
Program Director: Dr. Chunyan Li  
**WAVCIS** Wave-Current-Surge Information System for Coastal Louisiana  
218 Howe-Russell Geoscience Complex, Baton Rouge, Louisiana, 70803

## 120 Hour Water Surface Temperature Forecast

HYCOM GOM Surface Temperature-2013/02/26 03:00(GMT)



Coastal Studies Institute





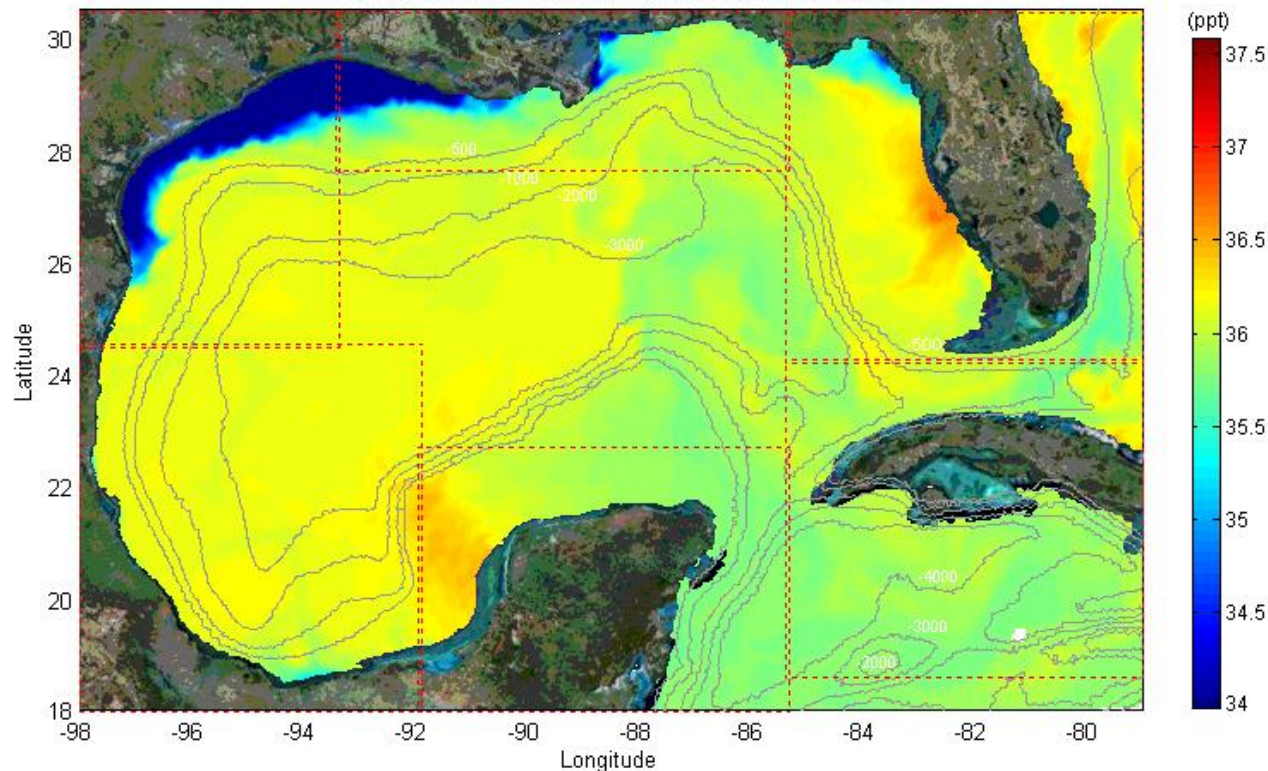
# HYCOM Surface Salinity Forecast



Coastal Studies Institute, School of the Coast and Environment, Louisiana State University  
Program Director: Dr. Chunyan Li  
**WAVCIS** Wave-Current-Surge Information System for Coastal Louisiana  
218 Howe-Russell Geoscience Complex, Baton Rouge, Louisiana, 70803

## 120 Hour Salinity Forecast

HYCOM GOM Surface Salinity-2013/02/26 03:00(GMT)



Coastal Studies Institute



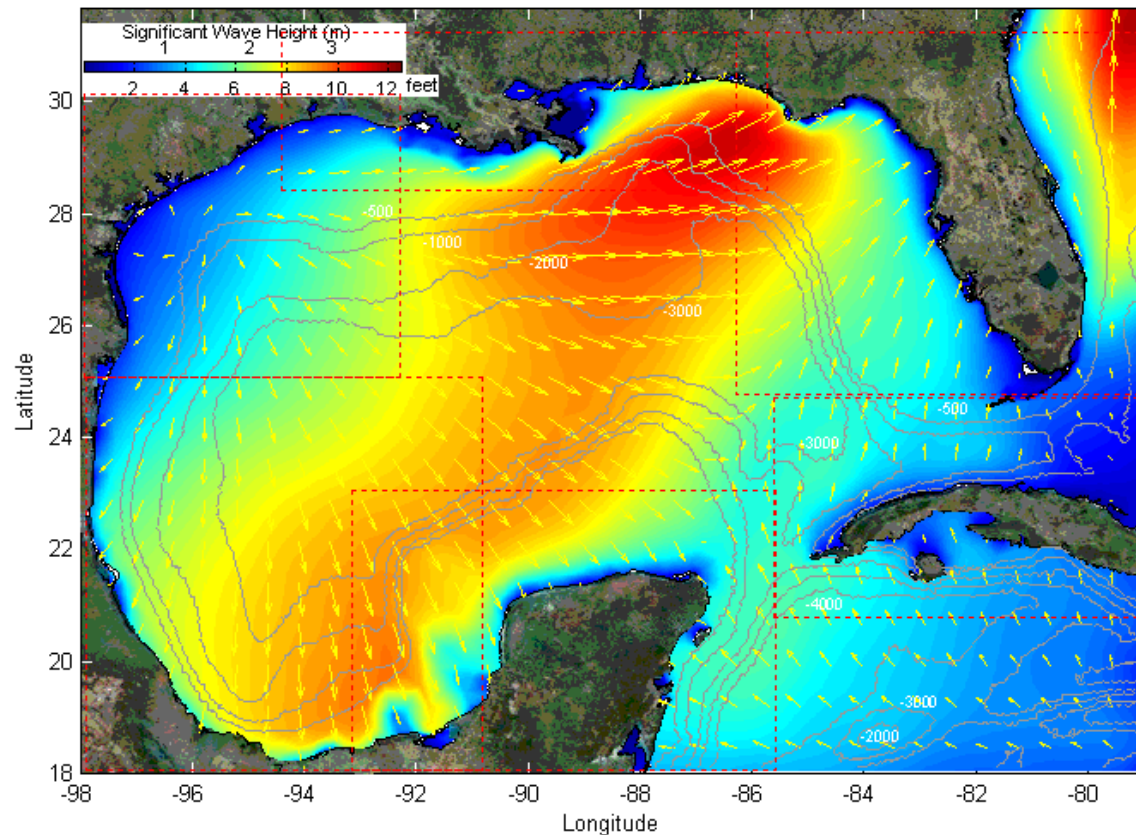
# Mike21 Wave Forecast



Coastal Studies Institute, School of the Coast and Environment, Louisiana State University  
Program Director: Dr. Chunyan Li  
**WAVCIS** Wave-Current-Surge Information System for Coastal Louisiana  
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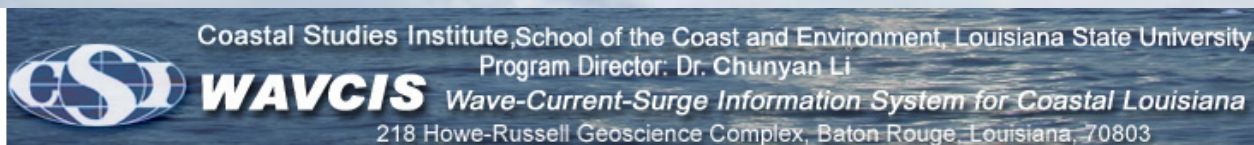
## 84 Hour Wave Forecast (using MIKE21)

Wave Height and Direction for 02/27/13 00:00Z (02/26/13 18:00 CST)  
Forecasted at 02/27/13 00:00Z



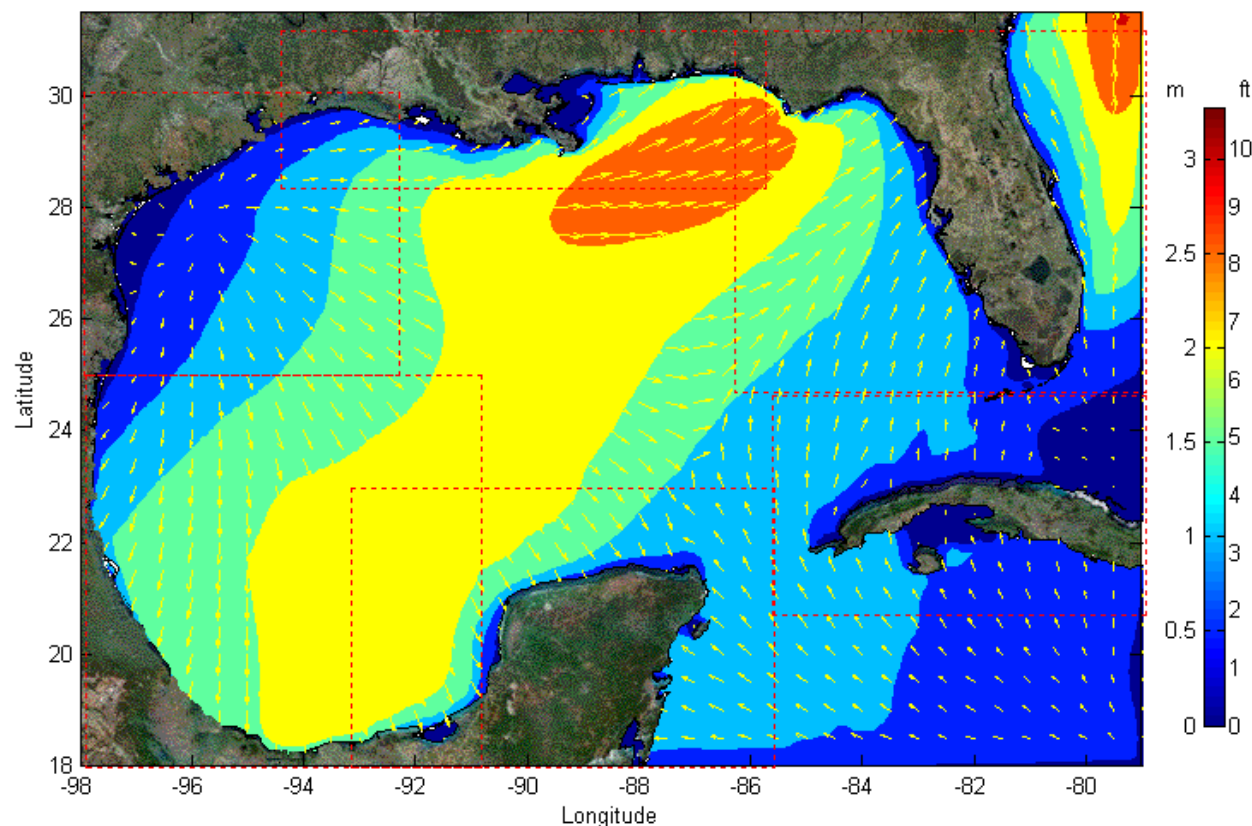


# SWAN Wave Forecast



## 84 Hour Wave Forecast (using SWAN)

Wave Height & Direction for 02/27/13 00:00Z (02/26/13 18:00 CST), Unstructured SWAN Forecast  
Forecasted at 02/27/13



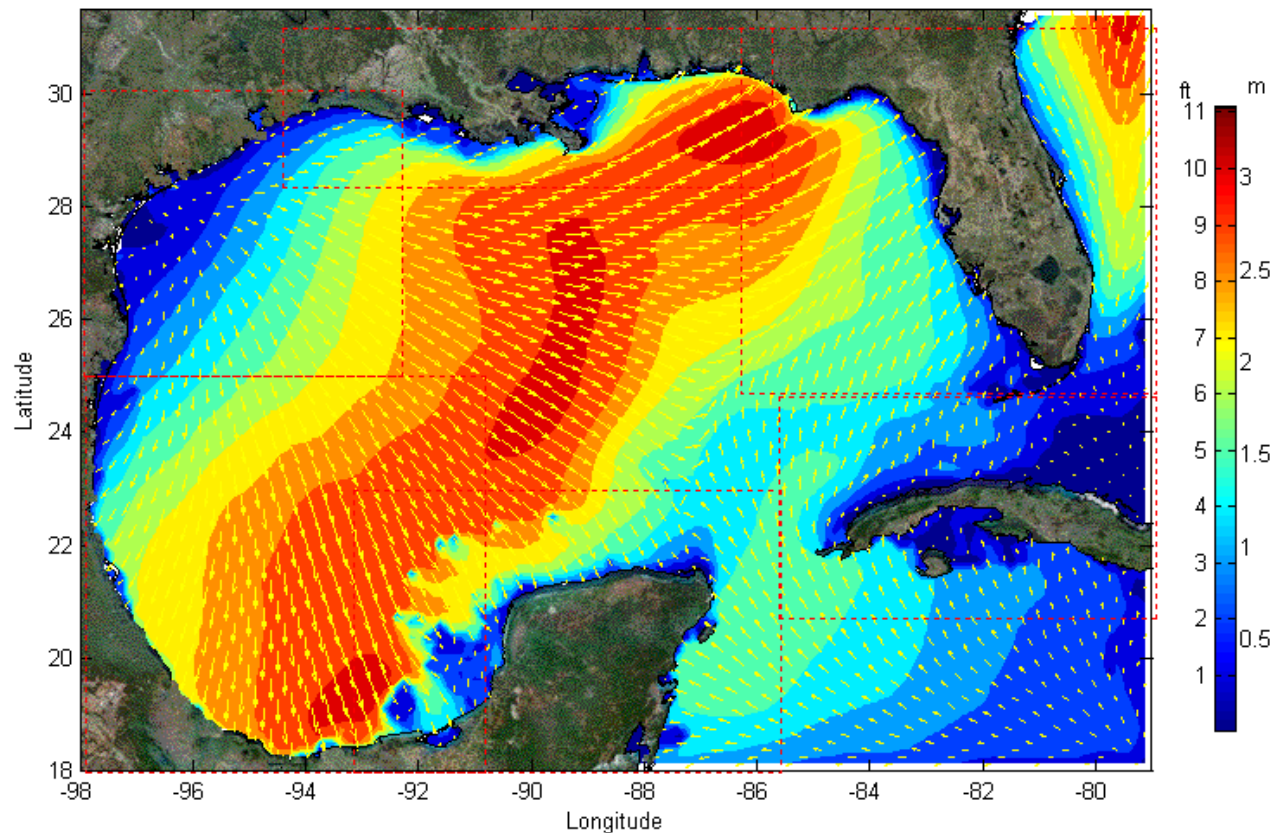
# WWIII Wave Forecast



Coastal Studies Institute, School of the Coast and Environment, Louisiana State University  
Program Director: Dr. Chunyan Li  
**WAVCIS** Wave-Current-Surge Information System for Coastal Louisiana  
218 Howe-Russell Geoscience Complex, Baton Rouge, Louisiana, 70803

## 84 Hour Wave Forecast (using WW3)

Wave Height & Direction for 02/27/13 00:00Z (02/26/13 18:00 CST),  
Forecasted at 02/27/13 00:00Z



Coastal Studies Institute



# **RESEARCH AT WAVCIS**

**TWO FACULTY MEMBERS  
ONE FIELD AND SYSTEM TECHNICIAN  
5 STUDENTS (US AND INTERNATIONAL)  
1 POSTDOC**

## **Motivation**

# **EXAMPLE PROJECTS**

Effects of river flood, river diversion

Coastal plume

Sediment transport, land loss, erosion of barrier islands

Bay-ocean exchange, implication to fishery, hypoxia

Oil spill ...

## **Objectives**

Coastal currents ...

Oscillation of bays ...

... any linkages??

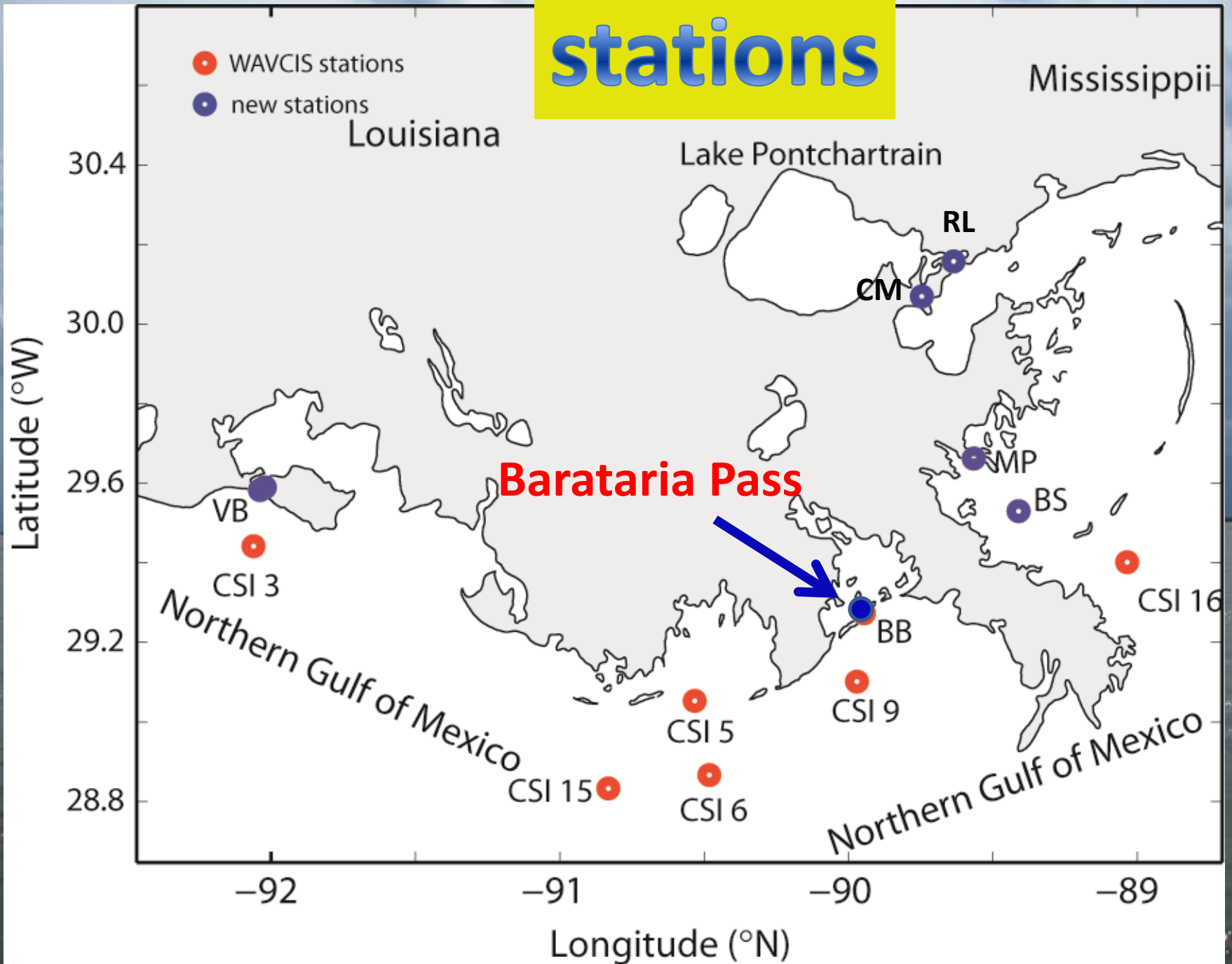
## **Methods**

Observations ...

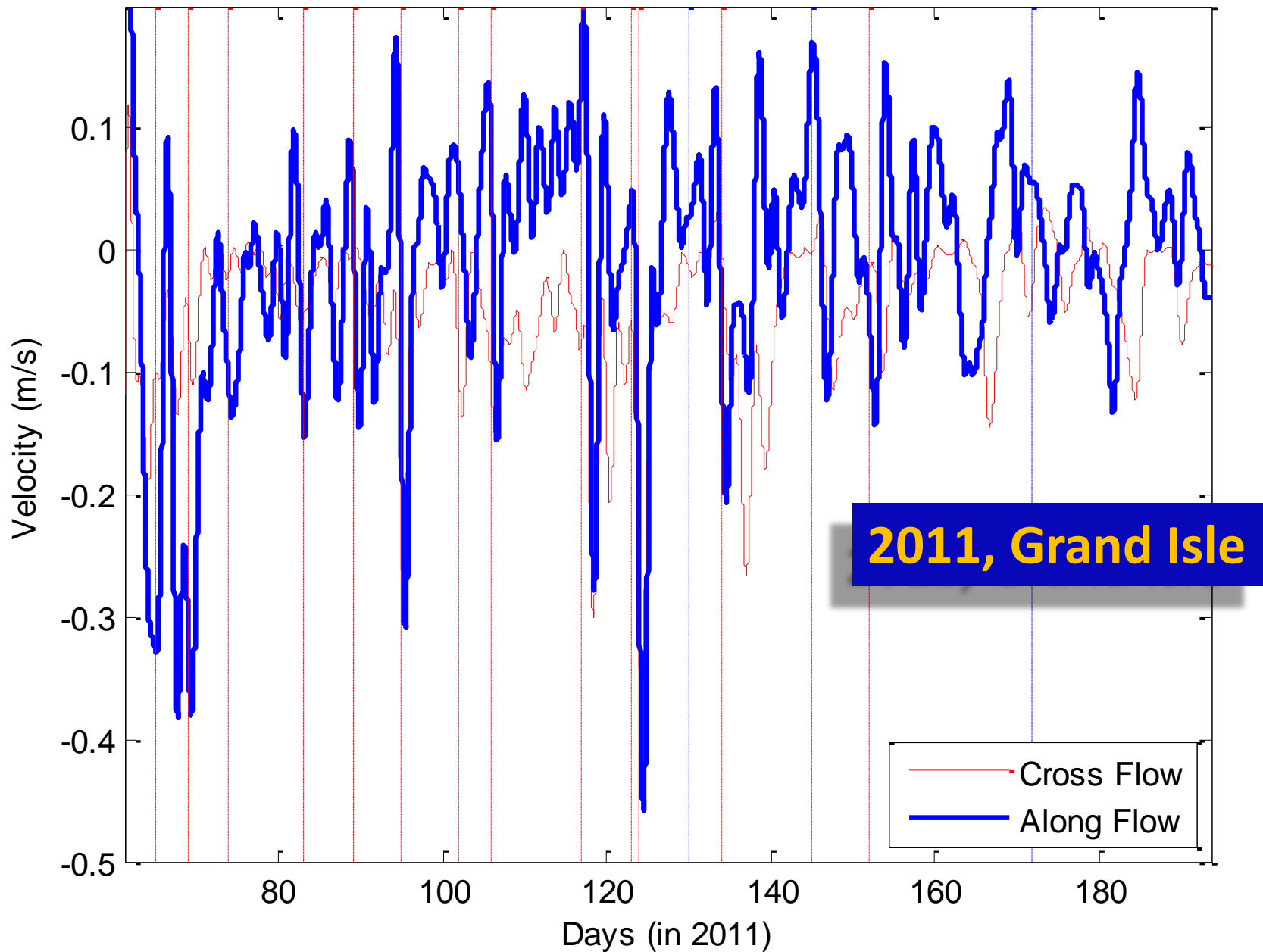
Complimented by modeling ...



# stations

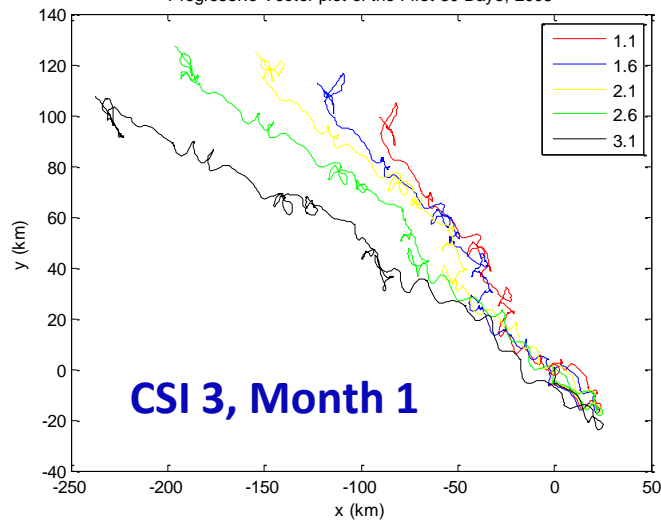


## Low Pass Filtered Along & Cross Flows at Barataria Pass, 2011

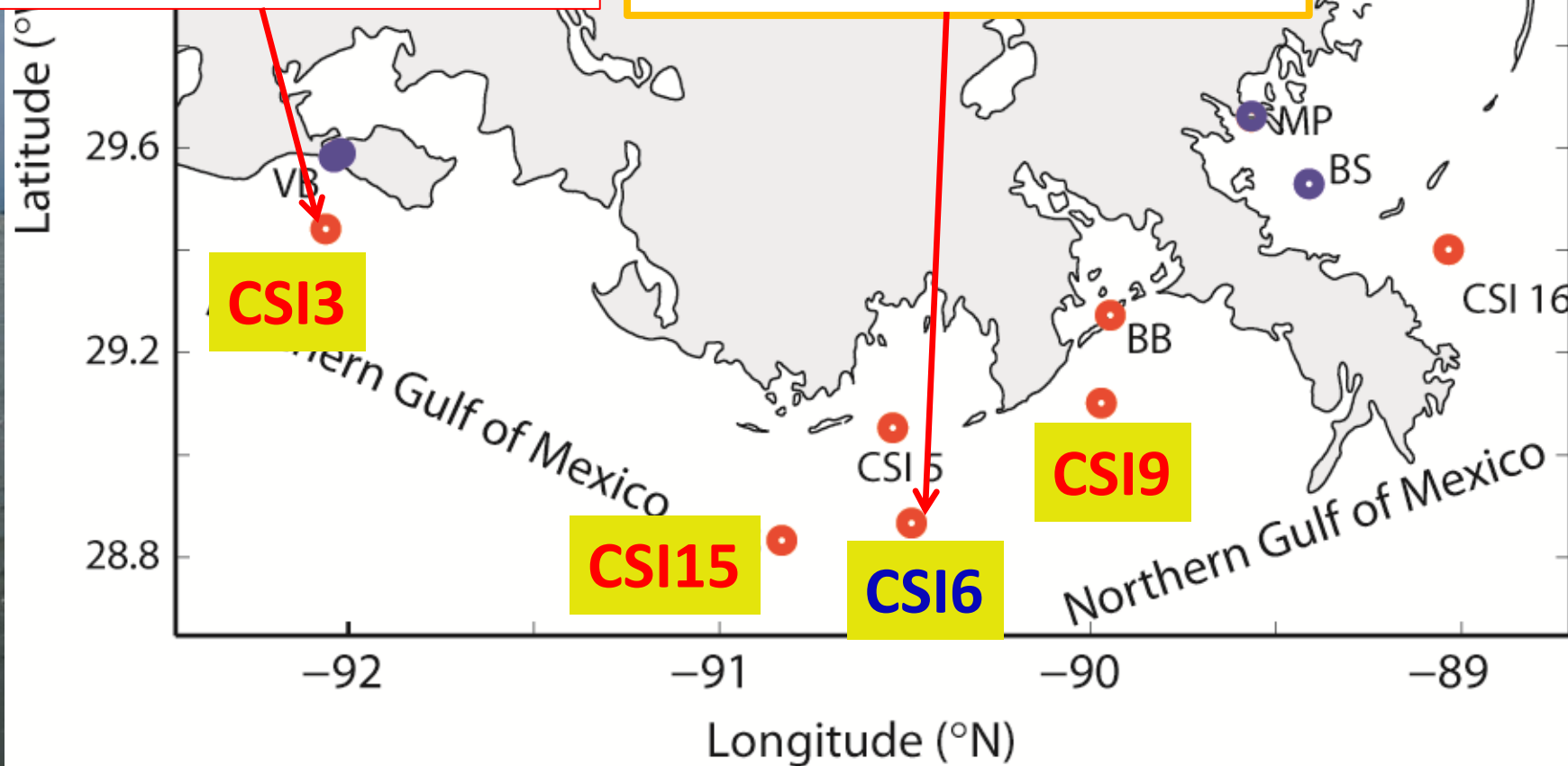
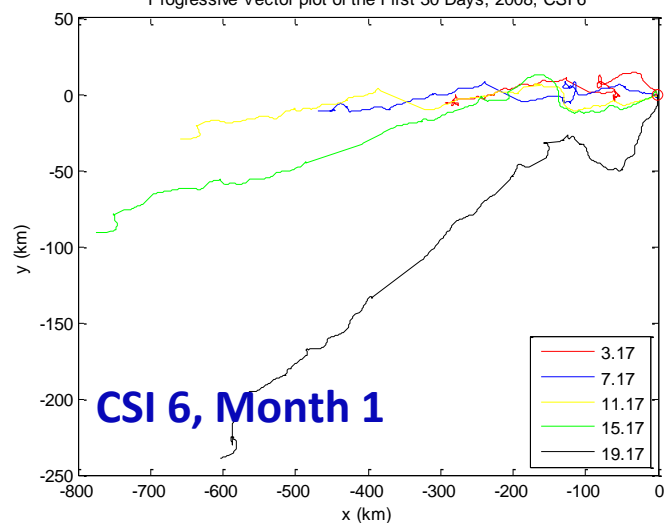


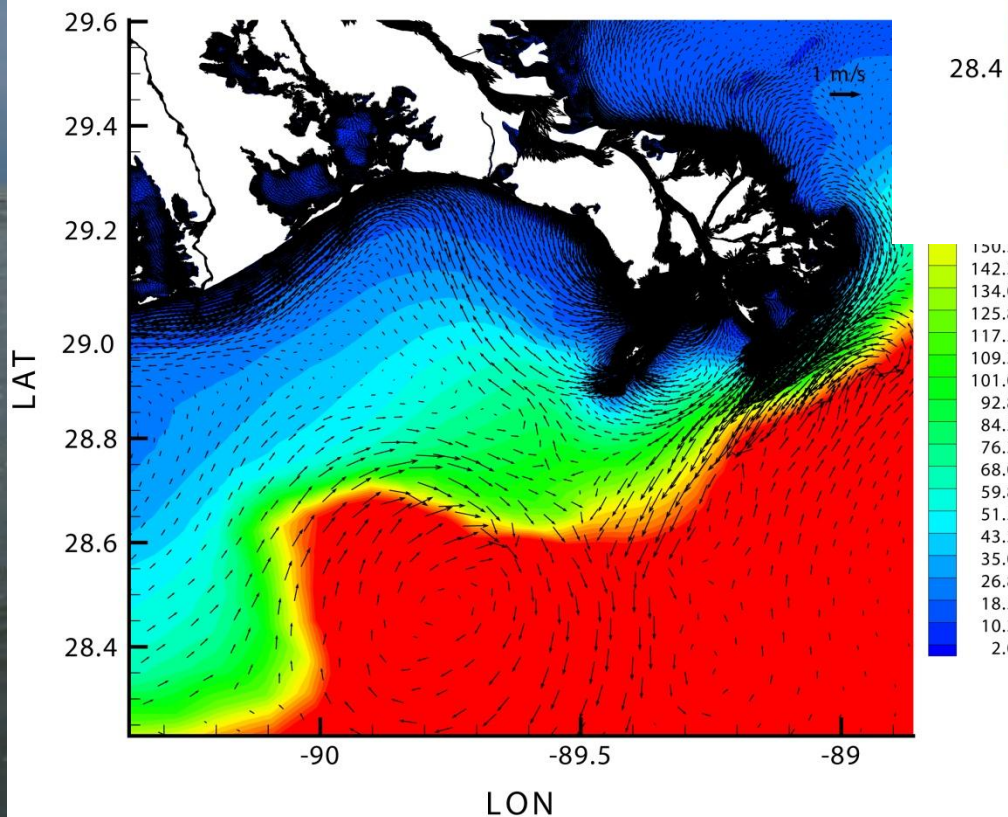
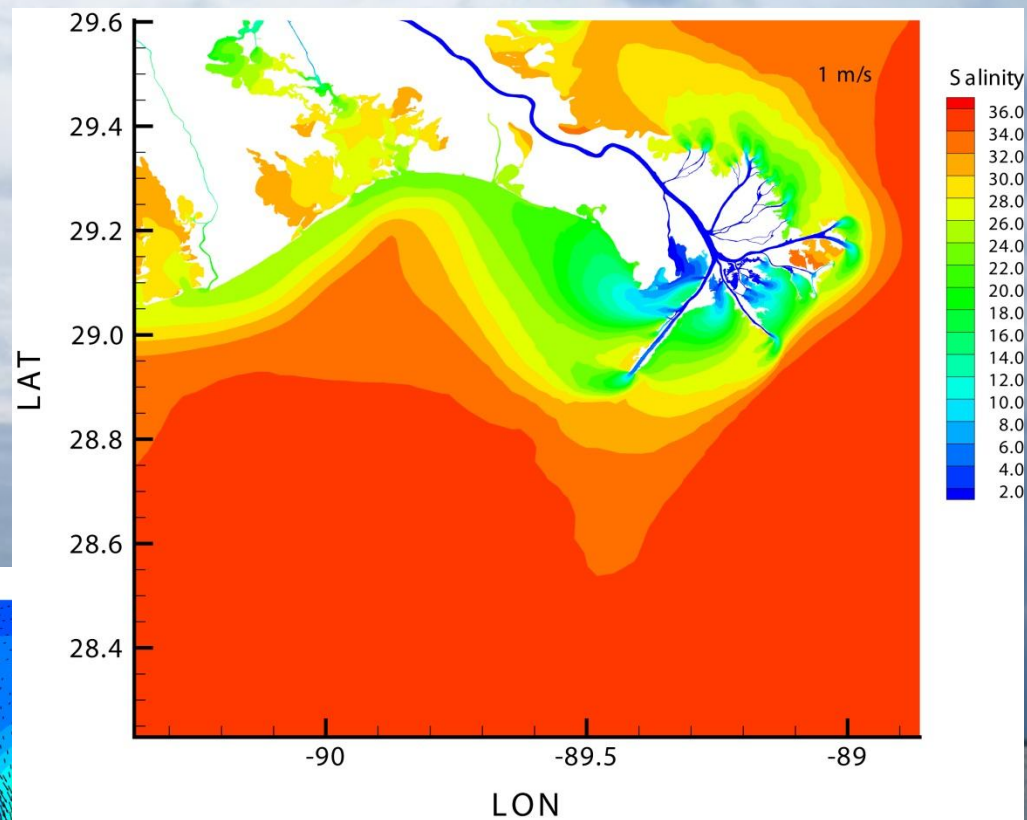
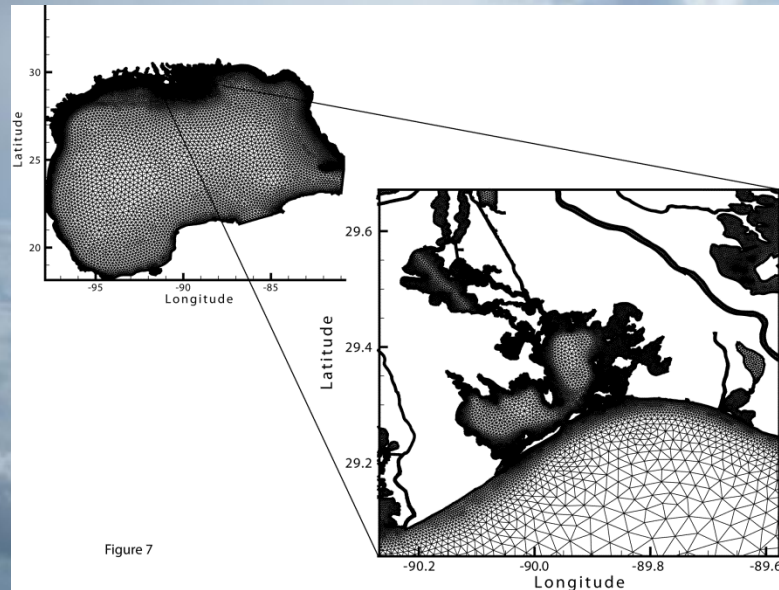


Progressive Vector plot of the First 30 Days, 2008



Progressive Vector plot of the First 30 Days, 2008, CSI 6





Additional Model work

Li et al., 2011, JGR-Oceans



